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# ROYAL ASTRONOMICAL SOCIETY.

VOL. V. *Dec.* 9, 1842. No. 26.

The President, LORD WROTTESLEY, in the chair.

John Lane, Esq. R.N., of Keppel Street, Russell Square, was balloted for and duly elected a Fellow of the Society.

The following communications were read:—

I. A Letter from Professor Henderson to the Secretary, on the Parallaxes of certain Southern Stars:—

*Edinburgh, October* 5, 1842.

My dear Sir,—I applied to Mr. Maclear for the continuation of his observations of *α Centauri;* but I have received his answer, saying that he has no more at present to communicate. Two years ago, the greater part of the astronomical work at the Observatory was suspended by the operations connected with the measurement of the arc of the meridian. The observations of *α Centauri* have just been resumed, and also of some other stars in the same region of the heavens, which Sir John Herschel recommended as deserving investigation for parallax. Twelve months must, however, elapse before results can be drawn from these observations.

It occurred to me that it might be proper to ascertain what were the parallaxes that appeared from my observations at the Cape, of such stars as had been observed sufficiently often to reduce within reasonable limits the errors of observation; and although my observations were not made with a view of eliciting parallax, I reduced in the ordinary manner the observations of declination of twenty stars, comprehending most of those pointed out by Sir John. The following are the results which were communicated several months ago to Sir John and Mr. Maclear:—

| No. of A. S. C. | Star. | Parallax. | No. of Observations. | Weight. |
|---|---|---|---|---|
| 27 | $\beta$ Hydri ..... | $+0''\cdot63$ | 33 | 15·10 |
| 32 | $\alpha$ Phœnicis ..... | +0·90 | 33 | 8·73 |
| 182 | $\alpha$ Eridani ..... | +0·47 | 74 | 45·67 |
| 699 | $\alpha$ Columbæ ..... | +0·53 | 141 | 54·12 |
| 807 | $\alpha$ Argûs ..... | −0·08 | 89 | 46·44 |
| 869 | $\varepsilon$ Canis Majoris ..... | +0·01 | 30 | 12·58 |
| 1003 | $\gamma^2$ Argûs ..... | +0·10 | 31 | 13·17 |
| 1032 | $\varepsilon$ Argûs ..... | +0·28 | 32 | 15·90 |
| 1133 | $\beta$ Argûs ..... | −0·04 | 32 | 15·26 |
| 1137 | $\iota$ Argûs ..... | +0·08 | 32 | 12·97 |
| 1276 | $\theta^2$ Argûs ..... | −0·22 | 30 | 21·94 |
| 1281 | $\eta$ Argûs ..... | −0·05 | 34 | 18·26 |
| 1427 | $\alpha^1$ Crucis ..... | +0·48 | 17 | 8·91 |
| | $\alpha^2$ Crucis ..... | +0·37 | 18 | 9·29 |
| 1439 | $\gamma$ Crucis ..... | +0·25 | 20 | 7·57 |
| 1473 | $\beta$ Crucis ..... | +0·12 | 45 | 12·57 |
| 1596 | $\beta$ Centauri ..... | +0·28 | 43 | 13·16 |
| 1906 | $\alpha$ Trianguli Aust. ... | +1·00 | 46 | 7·33 |
| 2398 | $\alpha$ Pavonis ..... | +0·15 | 32 | 5·70 |
| 2623 | $\alpha$ Gruis ..... | +0·62 | 31 | 4·01 |

Although considerable parallaxes appear in *α Phœnicis*, *α Trianguli Australis*, and *α Gruis*, yet, as the weights to be given to the results are small (the observations not having been made at the best times for parallax), I place little reliance on them. Nevertheless, I have recommended these stars to Mr. Maclear for re-observation.

Considerable parallaxes also appear in *β Hydri*, *α Eridani*, *α Columbæ*, and *α Crucis* (double star); and as the weights for these stars are greater, there may be a chance of some parallax being detected in one of them. I have therefore recommended them also to Mr. Maclear.

The parallaxes of the remaining twelve stars (amongst them is *Canopus*, which, after *Sirius*, is the brightest star in the heavens) appear to be so small, that we may conclude them to be beyond the power of the mural circle.

The mean of the 20 parallaxes is $+0''\cdot29$; and we may, perhaps, suppose that this quantity is a nearer approximation to the true value of the mean of the parallaxes of these stars than any one of the individual results is to the true parallax of the star.

Consequently, if the parallaxes of some of these stars be greater than $+0''{\cdot}29$, those of others (and probably the greater number) are less.

The number of positive results is remarkable; but it is possible that they are produced by some other cause than parallax affecting the observations.

In a conversation which I had with M. Bessel, he expressed his wish that $\alpha$ *Centauri* were observed with a heliometer, or good equatoreal, capable of precise micrometrical measurement; and he said that he had doubts of the results derived from meridian instruments. He mentioned the case of Dr. Brinkley's parallaxes, and stated that, in his own observatory, two excellent meridian circles, placed beside each other, gave, at certain seasons, places of the pole-star that differed from each other; the reason of which disagreement he had not found out.

This makes me very desirous that a good heliometer or equatoreal should be got for the Cape. Maclear reminds me that his portable 4-feet achromatic, though provided with a good micrometer, does not from its construction, permit the equatoreal adjustments to be employed between the zenith and the pole.

I am, my dear Sir,

Yours very faithfully,

T. Henderson.

*The Rev. R. Main.*

II. Observations of the Beginning and End of the Solar Eclipse of July 7, 1842, communicated by C. Rumker, Esq. in a letter to Dr. Lee.

At Hamburg, the beginning of the eclipse was not visible, but the end was observed by Mr. Rumker at $19^h\ 30^m\ 23^s{\cdot}8$ mean solar time.

At Lubeck, the times of the beginning and end were observed by Mr. Franck:

| | |
|---|---|
| Mean solar time of beginning ..... | $17^h\ 36^m\ 38^s{\cdot}9$ |
| Ditto ditto end..... | 19 33 47 ·2 |

At Leipsic, the beginning was observed at $17^h\ 40^m\ 34^s$, mean solar time.

At Papenburg, the end was observed by Mr. Eglert at $19^h\ 12^m\ 15^s$, mean solar time.

At Presburg, Professor Marting observed,—

| | | |
|---|---|---|
| The beginning at ..... | $17^h\ 59^m\ 5^s$ | Mean solar time. |
| Beginning of total obscurity at . | 18 56 29 | ,, |
| End of total obscurity at..... | 18 58 57 | ,, |
| End of eclipse at ..... | 20 1 25 | ,, |

At Presburg, *Capella*, $\alpha$ *Orionis*, $\gamma$ *Orionis*, $\alpha$ *Persei*, $\alpha$ *Lyræ*, and *Polaris*, were visible. The obscuration was not, however, so complete but that the small print of a newspaper might have been read, and the part of the sky where the sun was had a lumi-

nous appearance; a dampness, however, was felt, and Reaumur's thermometer fell from 20° to 11°½.

III. Occultations observed at Yarmouth, by Arthur Utting, Esq., communicated in a letter to E. Riddle, Esq.

The weather was generally unfavourable at the time of the occultation of Jupiter by the moon on November 7, 1842; but, at Yarmouth, the clouds dispersed a few minutes before the time of the emersion, and a good observation was made with a two-feet Gregorian telescope:—

| | | |
|---|---|---|
| First appearance of Jupiter's west limb ..... | $5^h\ 6^m\ 52^s{\cdot}5$ | Mean solar time. |
| East limb in contact with the moon's limb... | 5 8 1 ·5 | ,, |

The night of November 12th was very fine, and the immersions of $\varkappa^1$ and $\varkappa^2$ Piscium were observed as follows:

| | | |
|---|---|---|
| $\varkappa^2$ *Piscium* at ..... | $9^h\ 33^m\ 34^s{\cdot}7$ | Mean solar time. |
| $\varkappa^1$ *Piscium* at ..... | 9 57 53 ·7 | ,, |

Both stars disappeared simultaneously, as observed with a three-feet telescope.

IV. Sequel to a paper "On a new Method for greatly facilitating the Computation of the Moon's Co-ordinates." By S. M. Drach, Esq.

The object of this paper is to present, in a practical shape, the transformation of the lunar equations which had been suggested by the author in his former paper, for facilitating the computation of the moon's co-ordinates. Though the facilitation did not reach the extent at first anticipated, still it is hoped by the author that much labour will be saved to the computer of the places of the moon by the use of the method proposed.

The paper is accompanied by two skeleton forms, representing the details of the computations necessary for computing the co-ordinates by the use of the tables proposed by the author.

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There was exhibited in the meeting-room an instrument which has been recently presented to the Society by Admiral Greig, a detailed account of which (accompanying it) will be read at the next meeting.

*** *The Twelfth Volume of the Memoirs of the Society is now published, and may be had of the Assistant Secretary, at the Apartments of the Society. Price to Fellows* 12*s.* 6*d.*

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